

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. In a computer system including a display, a user input facility, and an application for presenting user interfaces on the display, a Web-style application comprising:

one or more page functions, each page function having a set of exposed attributes, a set of page function services, and a binding selectively bound to a user interface page, a first subset of the set of exposed attributes defining types of information receivable by the page function, a second subset of the set of exposed attributes defining types of information returnable by the page function, the set of page function services including an activate service and a complete service, both services being invocable to execute a decision selected from a group consisting of a decision to finish, a decision to show the user interface page, and a decision to create a new page function; and

a frame having a set of frame services and a data structure, the set of frame services including a navigate service and a finish service, the navigate service being invocable by a page function to cause the frame to invoke the activate service of another page function and cause the other page function to perform a task, the finish service being invocable by the other page function to cause the frame to invoke the complete service of the page function, the data structure designed to store data that identified each page function to which the frame has navigated, and the relationship among page functions.

2. The Web-style application of Claim 1, wherein the set of exposed attributes includes an identifier that uniquely identifies the page function.

3. The Web-style application of Claim 2, wherein the data structure includes one or more nodes, each node containing the identifier of a corresponding page function to which the frame has navigated, each node further containing a link to another node if the other node cause the frame to navigate to the node.

4. The Web-style application of Claim 1, wherein the frame includes a binding to a frame user interface page.

5. The Web-style application of Claim 4, wherein the , the frame user interface page has a frame window with a periphery and a region within the periphery of the frame window for showing one user interface page of one page function at a time.

6. The Web-style application of Claim 5, wherein the frame window includes a back facility that, in response to an input received from the user input facility, causes a previously displayed user interface page to be redisplayed.

7. In a computer system including a display, a user input facility, and an application for presenting user interfaces on the display, the user interfaces being associated with page functions, each page function being selectively bound to a user interface page, a method for navigating among the page functions comprising:

displaying a frame user interface page, the frame user interface page having a region for showing the user interface page bound to a page function, the region being adapted to show one user interface page at a time;

displaying a user interface page bound to a first page function in the region of the frame, the user interface page bound to the first page function having one or more hyperlinks, at least one hyperlink adapted to initiate the performance of a task upon receipt of an input from the user input facility, the task including one or more subtasks and being defined as completed when the last subtask of the one or more subtasks is finished, each subtask including one or more page functions;

sequentially displaying user interface pages bound to the one or more page functions of a first subtask in the region of the frame, the last page function of the sequence including a hyperlink that when actuated communicates to the first page function that the first subtask is finished; and

sequentially displaying user interfaces bound to the one or more page functions of a second subtask following the sequential display of user interface pages bound to the one or more page function of the first subtask in the region of the frame without displaying the user interface page bound to the first page function when the first subtask communicates to the first page function that the first subtask is finished.

8. The method of Claim 7, wherein the frame user interface includes a back facility that, in response to a user input, causes a previously displayed user interface page of a page function to be redisplayed.

9. The method of Claim 7, wherein the previously displayed user interface page is not redisplayed if the page function bound to the previously displayed interface page has previously requested that the previously displayed user interface page be removed from a frame datastructure.

10. The method of Claim 7, wherein the previously displayed user interface page is not redisplayed if the related finished subtask has requested that the one or more page functions of the finished subtask be removed from a frame data structure.

11. The method of Claim 6, further comprising redisplaying the user interface page of the first page function in the region of the frame when the last page function of the last subtask communicates to the first page function that the last subtask is finished.

12. In a computer system including a display, a user input facility, and an application for showing user interfaces on the display, the user interfaces being associated with page functions, each page function being capable of causing its associated user interface to present one or more hyperlinks on the display, the hyperlinks being responsive to input received from the user input facility, a method of communicating among the page functions, the method comprising:

in response to an input received from the user input facility, activating a first page function designed to perform a first task, when performing the first task, the first page function executing a first decision chosen from a set of decisions selected from a group consisting of a decision to finish, a decision to show a user interface page, and a decision to create a page function;

creating a second page function designed to perform a second task if the first decision executed by the first page function is to create a page function and requesting a frame to navigate to the second page function, the frame navigating to the second page function and

activating the second page function in response to the request to navigate to the second page function, when performing the second task, the second page function executing a second decision chosen from the set of decisions; and

returning to the first page function if the second decision executed by the second page function is to finish, the second page function advising the frame that the second task is finished and the frame advising the first page function that the second page function has completed the second task, the first page function then executing a third decision chosen from the set of decisions.

13. The method of Claim 12, further comprising not returning to the first page function and not executing the acts that follow returning to the first page function if the second decision executed by the second page function is to show a user interface, and showing the user interface of the second page function on the display in response to the second decision.

14. The method of Claim 12, further comprising not returning to the first page function and not executing the acts that follow returning to the first page function if the second decision executed by the second page function is to create a page function, and creating a third page function in response to the second decision and requesting the frame to navigate to the third page function, the frame navigating to the third page function and activating the third page function in response to the request to navigate to the third page function, when performing the third task, the third page function executing a fourth decision chosen from the set of decisions.

15. The method of Claim 12, wherein activating a first page function includes supplying first input information to the first page function used by the first page function to perform the first task.

16. The method of Claim 15, wherein advising the frame that the second task is finished includes providing information that identifies the second page function to the frame.

17. The method of Claim 16, wherein advising the first page function that the second page function has completed the second task includes providing information about the performed second task and information that identifies the second page function.

18. The method of Claim 17, further comprising, prior to activating the first page function, creating the first page function and a first identifier for identifying the first page function.

19. The method of Claim 18, wherein navigating to the first page function includes supplying the first identifier to the frame, the frame creating a first node in a frame data structure and causing the first node to contain the first identifier.

20. The method of Claim 19, wherein activating the second page function includes supplying second input information to the second page function used by the second page function to perform the second task.

21. The method of Claim 20, wherein creating a second page function includes creating a second identifier for identifying the second page function, and wherein navigating to the second page function includes supplying the second identifier to the frame, the frame creating a second node in the frame data structure and causing the second node to contain the second identifier, the frame creating a link between the first node and the second node that identifies the first page function is the originator of the second page function.

22. In a computer system including a display, a user input facility, and an application for presenting user interfaces on the display, the user interfaces associated with page functions, a user interface programming system having a computer-readable medium that has stored thereon a data type being defined as a frame, the frame comprising:

a set of frame services that includes a navigate service and a finish service, the navigate service being invocable by a page function to navigate to another page function to perform a task, the finish service being invocable by the other page function to communicate to the frame that the task has been performed; and

a frame data structure for storing information that identifies each page function to which the frame has navigated, the frame data structure showing the originator relationship among page functions.

23. The frame of Claim 22, wherein the frame data structure includes a plurality of nodes, each node containing an identifier for a corresponding page function, the node being selectively linked to other nodes to show the originator relationship between page functions.

24. The frame of Claim 23, wherein sets of nodes are removed from the history data structure when a page function communicates that the task associated with the page function has been performed and specifies that the set of nodes is to be removed.

25. The frame of Claim 23, wherein the frame data structure maintains a set of nodes in the history data structure when a page function communicates that the task associated with the page function has been performed, and does not specify that the set of nodes is to be removed.

26. The frame of Claim 22, wherein the set of frame services includes a back service, the back service traversing over one node of the frame data structure at a time and displaying the user interface page bound to the page function identified by the traversed node.

27. In a computer system including a display, a user input facility, and an application for presenting user interfaces on the display, one or more page functions being stored on a computer-readable medium as a data type, each page function comprising:

a set of exposed attributes accessible externally to the page function, a first subset of the set of exposed attributes defining types of information receivable by the page function, a second subset of the set of exposed attributes defining types of information returnable by the page function;

a set of page function services including an activate service and a complete service, both services being invocable to execute a decision selected from a group consisting of a decision to finish, a decision to show a user interface page, and a decision to create a new page function; and

a binding selectively coupled to a user interface page.

28. The page function of Claim 27, wherein the activate service has a set of parameters, each corresponding to one of the first subset of exposed attributes.

29. The page function of Claim 27, wherein the complete service has a set of parameters, a portion of the set of parameters identifying another page function created by the page function to perform a second task, another portion of the set of parameters corresponding to one of the second subset of exposed attributes.

30. The page function of Claim 27, further comprising an identifier for identifying each instance of the page function.

31. The page function of Claim 27, wherein the binding is not coupled to a user interface page.

32. A method of communicating among a first page function, a second page function, and a frame in a page function architectural software framework, the framework being executed on a computer system having a display and a user input facility, the method comprising:

in the performance of a first task, the first page function issuing a request to navigate to the second page function, the request to navigate having a set of navigational parameters including an identifier of the first page function and an identifier of the second page function;

the frame receiving the request to navigate to the second page function including the set of navigational parameters;

in response to the request to navigate to the second page function, the frame issuing a request to activate the second page function including a set of activation parameters;

the second page function receiving the request to activate the second page function including the set of activation parameters;

in response to receiving the request to activate the second page function, the second page function performing a second task; and

in the performance of the task, the second page function executing a decision selected from a group consisting of a decision to finish, a decision to show a user interface page, and a decision to create a new page function.

33. The method of Claim 32, further comprising the second page function issuing a finished notification including an identifier of the second page function, the finished notification being indicative that the task is finished and the identifier of the second page function being indicative that the second page function is the page function that finishes the task.

34. The method of Claim 33, further comprising the frame receiving the finished notification including the identifier of the second page function.

35. The method of Claim 34, further comprising, in response to the finished notification, the frame issuing a notification of completion including a set of completion parameters, the set of completion parameters including the identifier of the second page function and one or more returned values associated with the performed task.

36. The method of Claim 35, further comprising the first page function receiving the notification of completion including the set of completion parameters, and executing a decision selected from a group consisting of a decision to finish, a decision to show a user interface page, and a decision to create a new page function.

37. In a computer system including a display, a user input facility, and an application for presenting user interfaces on the display, the user interfaces comprising page functions and Web pages, each page function and each Web page being capable of presenting one or more hyperlinks on the display, each hyperlink responsive to input



received from the user input facility, a system for navigating page functions and Web pages comprising:

each page function having a set of exposed attributes, a set of page function services, and a binding selectively bound to a user interface page, a first subset of the set of exposed attributes defining types of information receivable by the page function, a second subset of the set of exposed attributes defining types of information returnable by the page function, the set of page function services including an activate service and a complete service, both services being invokable to execute a decision selected from a group consisting of a decision to finish, a decision to show the user interface page, and a decision to create a new page function;

a frame having a set of frame services and a data structure, the set of frame services including a navigate service and a finish service, the navigate service being invokable by a page function to cause the frame to invoke the activate service of another page function and cause the other page function to perform a task, the finish service being invokable by the other page function to cause the frame to invoke the complete service of the page function, the data structure designed to store data that identifies each page function to which the frame has navigated, and the relationship among page functions; and

one or more Web pages, each Web page being accessible by selecting a hyperlink representing a uniform resource locator, the hyperlink being presentable on a Web page.

38. The system of Claim 37, wherein the set of exposed attributes includes an identifier that uniquely identifies the page function.

39. The system of Claim 38, wherein the data structure includes nodes, each node containing the identifier of a corresponding page function to which the frame has navigated, each node further containing a link to another node if the other node caused the frame to navigate to the node.

40. The system of Claim 39, wherein the frame includes a binding to a frame user interface page.

41. The system of Claim 40, wherein the frame user interface page has a frame window with a periphery and a region within the periphery of the frame window for showing one user interface page of one page function at a time.

42. The system of Claim 41, wherein the frame window includes a back facility that, in response to an input received from the user input facility, causes a previously displayed user interface page to be redisplayed.

43. In a computer system including a display, a user input facility, and an application for presenting user interfaces on the display, one or more page functions being stored on a computer-readable medium as a data type, a programming system having a computer-readable medium that has stored thereon an architectural software framework, the architectural software framework comprising:

a data type defined as a page function, the page function having a set of exposed attributes accessible externally to the page function, a set of page function services, and a binding selectively coupled to a user interface page, a first subset of the set of exposed attributes defining types of information receivable by the page function, a second subset of the set of exposed attributes defining types of information returnable by the page function, the set of page function services including an activate service and a complete service, both services being invocable to execute a decision selected from a group consisting of a decision to finish, a decision to show a user interface page, and a decision to create a new page function; and

another data type defined as a frame having a set of frame services and a frame data structure, the set of frame services including a navigate service and a finish service, the navigate service being invocable by a page function to navigate to another page function to perform a task, the finish service being invocable by the other page function to communicate to the frame that the task has been performed, the frame data structure storing information that identifies each page function to which the frame has navigated and showing the originator relationship among page functions.